EERA
European Energy Research Alliance

EERA Joint research Programme
Photovoltaic Solar Energy

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www.eera-set.eu

Introduction

Ambition of Joint Programme EERA-PV

- Accelerate development of photovoltaic solar energy towards an energy technology that can be implemented at a very large scale by increasing effectiveness and efficiency of RD&D in Europe
- Contribute to development needs of the Solar Europe Industry Initiative regarding cost reduction of solar electricity, in support of the SET plan (performance, lifetime/reliability, manufacturing costs)

Through alignment of (national) RD&D programmes by:

- ✓ Conducting joint research (joint programming)
- ✓ Sharing of infrastructure
- ✓ Exchange of scientists
- ✓ Complement FP7 (and FP8) programme

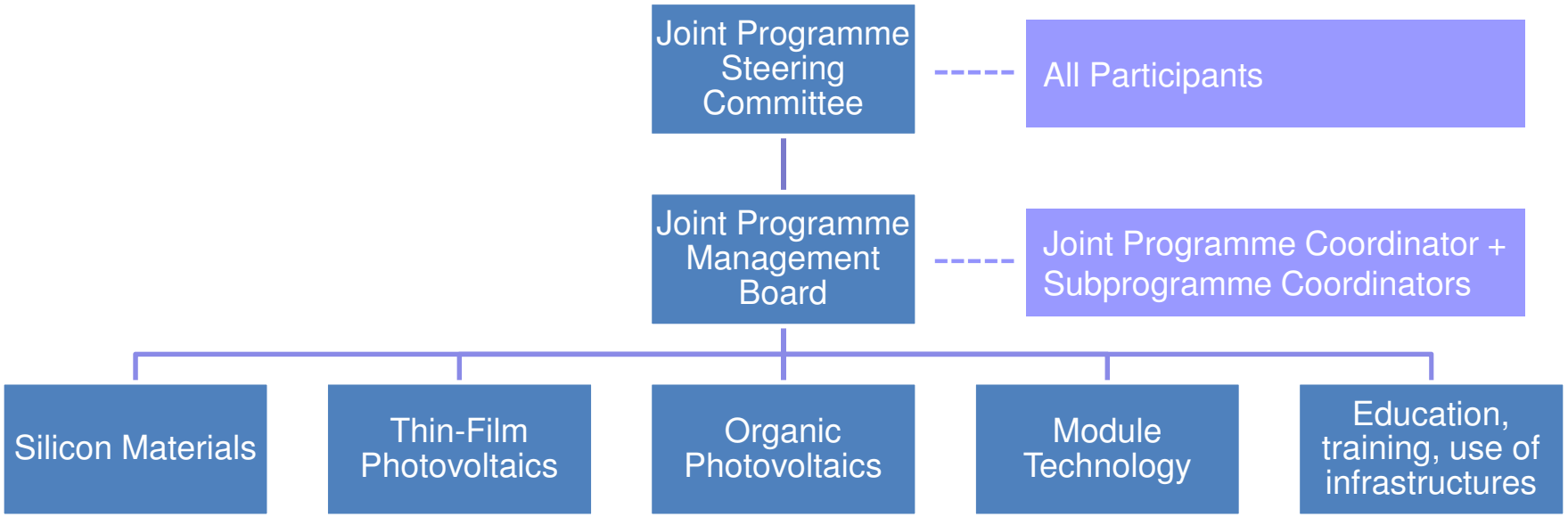
Structure of the Joint Programme

Structure of the JP: five sub-programmes

- JP EERA-PV – Dr Paul Wyers, ECN
- SP1: Silicon Materials – Dr Stefan Reber, FhG-ISE
- SP2: Thin film PV – Prof Dr Martha Lux-Steiner, HZB
- SP3: Organic PV – Dr Peter Sommer Larsen, Risø/DTU
- SP4: Module Technology – Dr Paul de Jong, ECN
- SP5: Education,Training & Infrastructures – Dr Philippe Malbranche, CEA-INES

Sub-programmes are based on Strategic Research Agenda (SRA) and Implementation Plan of the EU PV Technology Platform, and in line with SOPHIA Research Infrastructure proposal

Joint Programme Structure: PV



Participants

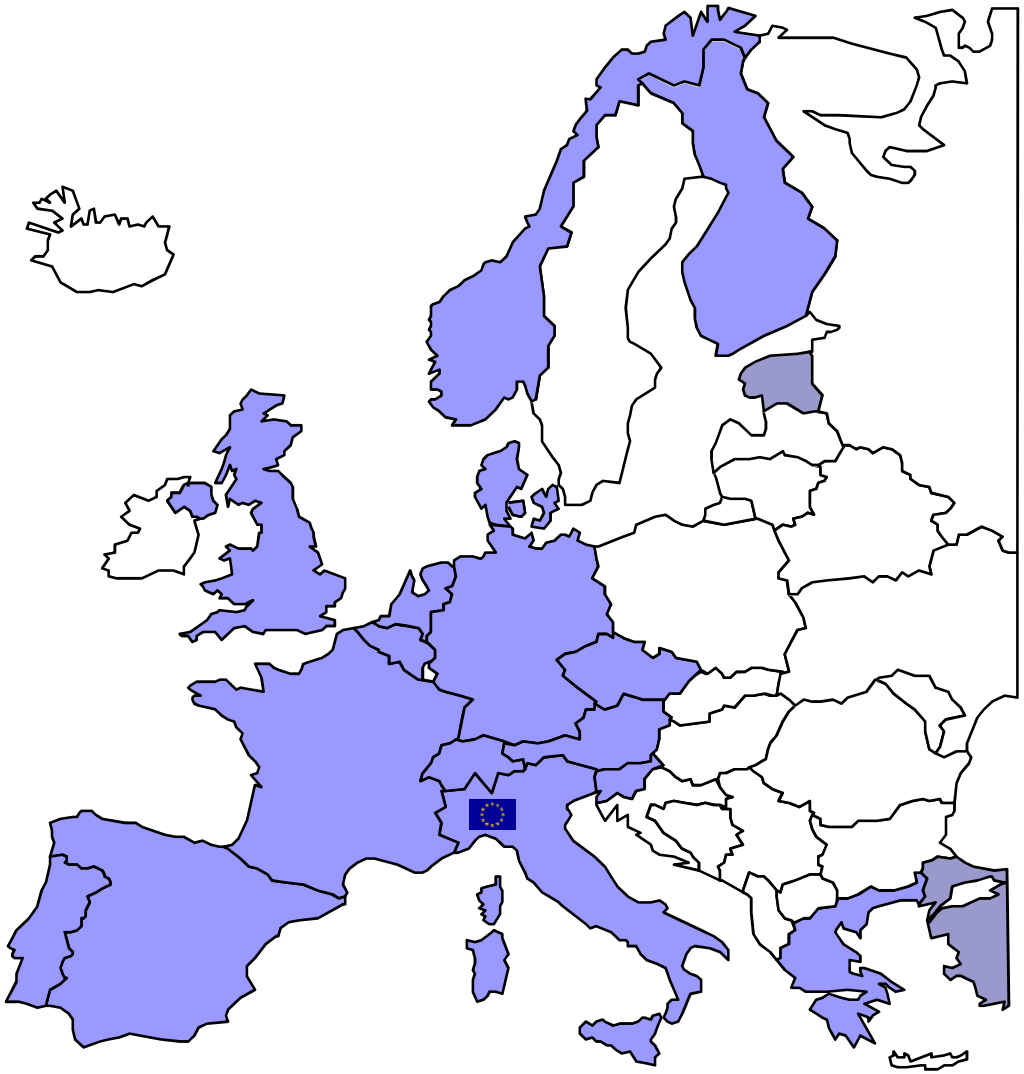
Participant name	Country	Human resources committed					
		Total	SP1	SP2	SP3	SP4	SP5
AIT	Austria	**60**		22		36	2
CEA-INES	France	**58**	12	6	6	22	12
CIEMAT	Spain	**28**		9	10	6	3
CRES	Greece	**16**				8	8
CREST	UK	**24**				24	
ECN	Netherlands	**62**	16	6	13	27	
EMPA	Switzerland	**5**	1	1	1	1	1
ENEA	Italy	**120**	12	42	12	42	12
EPFL	Switzerland	**30**		30			
FhG-ISE / ISET	Germany	**86**	24		10	52	
Fyzikalni ustav Akademie ved Ceske republiky	Czech Republic	**21**		21			
FZ Juelich	Germany	**72**		48		18	6
HZB	Germany	**132**		96	24		12
IFE	Norway	**tbd**					
IKP	Germany	**tbd**					
IMEC	Belgium	**60**	24		12	24	
Imperial College	UK	**10**			10		
JRC	EU	**6**				6	
LNEG	Portugal	**120**			48	36	36
NPL	UK	**tbd**					
Risø/DTU	Denmark	**38**			38		
SINTEF	Norway	**30**	23	7			
Tallinn University of Technology	Estonia	**tbd**					
TUBITAK	Turkey	**tbd**					
University of Ljubljana	Slovenia	**24**		15		6	3
VTT	Finland	**17**			17		
ZSW	Germany	**60**		48	12		
Total		***1079***	*112*	*351*	*213*	*308*	*95*

18 countries

27 partners

≈90 fte/a

(Associated) Participants



27 institutes

in

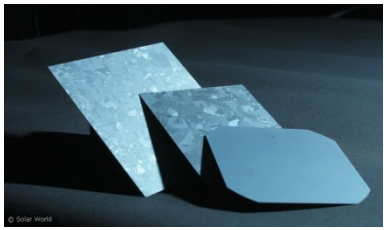
18 countries + EU (JRC)

contribute

~90 fte/year

Sub Programmes

SP1: Silicon Materials - SPC Stefan Reber, FhG-ISE



Main activities 2010-2013

- Improvement of **crystal growth for very high efficiency** solar cells
- Development of **low-cost feedstock and wafers**
- Development of **high Si utilization** approaches to wafers (low g/Wp)

Sub Programmes

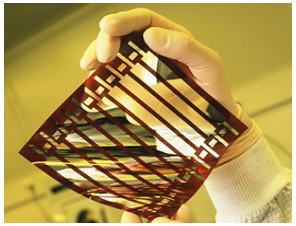
SP2: Thin Film PV – SPC Martha Lux-Steiner, HZB

Main activities 2010-2013

- Cell & module concepts for **high efficiency**
- Advanced **transparent conductors**
- Advanced **module manufacturing**
- Processes and equipment design for **large-scale production**
- Analysis and modelling of materials and devices

Sub Programmes

SP3: Organic PV - Peter Sommer Larsen, Risø/DTU



Main activities 2010-2013

- Building **library of materials** (absorber, electrode, barrier etc.)
- Defining protocols for **fast screening of materials**
- Elucidate **degradation mechanisms**, define common measures of OPV stability
- Improve **understanding** of device physics and morphology

Sub Programmes

SP4: Module Technology - Paul de Jong, ECN

Main activities 2010-2013

- Development and evaluation of **new module concepts and materials** (low-cost and/or very high lifetime)
- Development of test methodologies allowing **prediction of module lifetime** under different climate conditions
- Improving **energy yield predictions**

Sub Programmes

SP5: Education, Training & Infrastructures
- Philippe Malbranche, CEA-INES

Main activities 2010-2013

- Identify outstanding R&D facilities and **improve access for EERA**
- Identify R&D facilities that are **missing or need upgrade**
- Set-up **database of main projects** of EERA partners
- Identify **new joint projects using these facilities**
- Organize **staff exchange and education/training**

Committed Resources

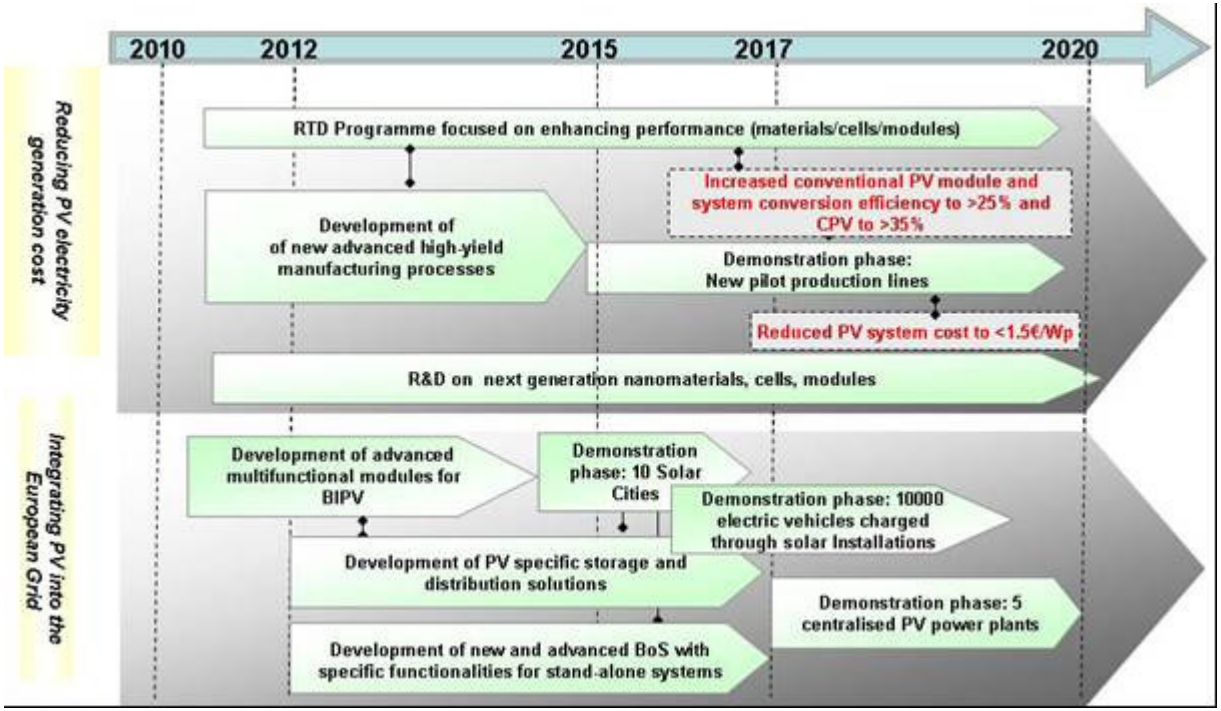
Sub-programme	Resources (fte/yr)*
SP1: Silicon Materials	9
SP2: Thin Film PV	29
SP3: Organic PV	18
SP4: Module Technology	26
SP5: Education, Training & Infrastructures	8
Total	90

*approximate numbers

Relation with the EC Roadmap

PV technology development 2010 – 2020

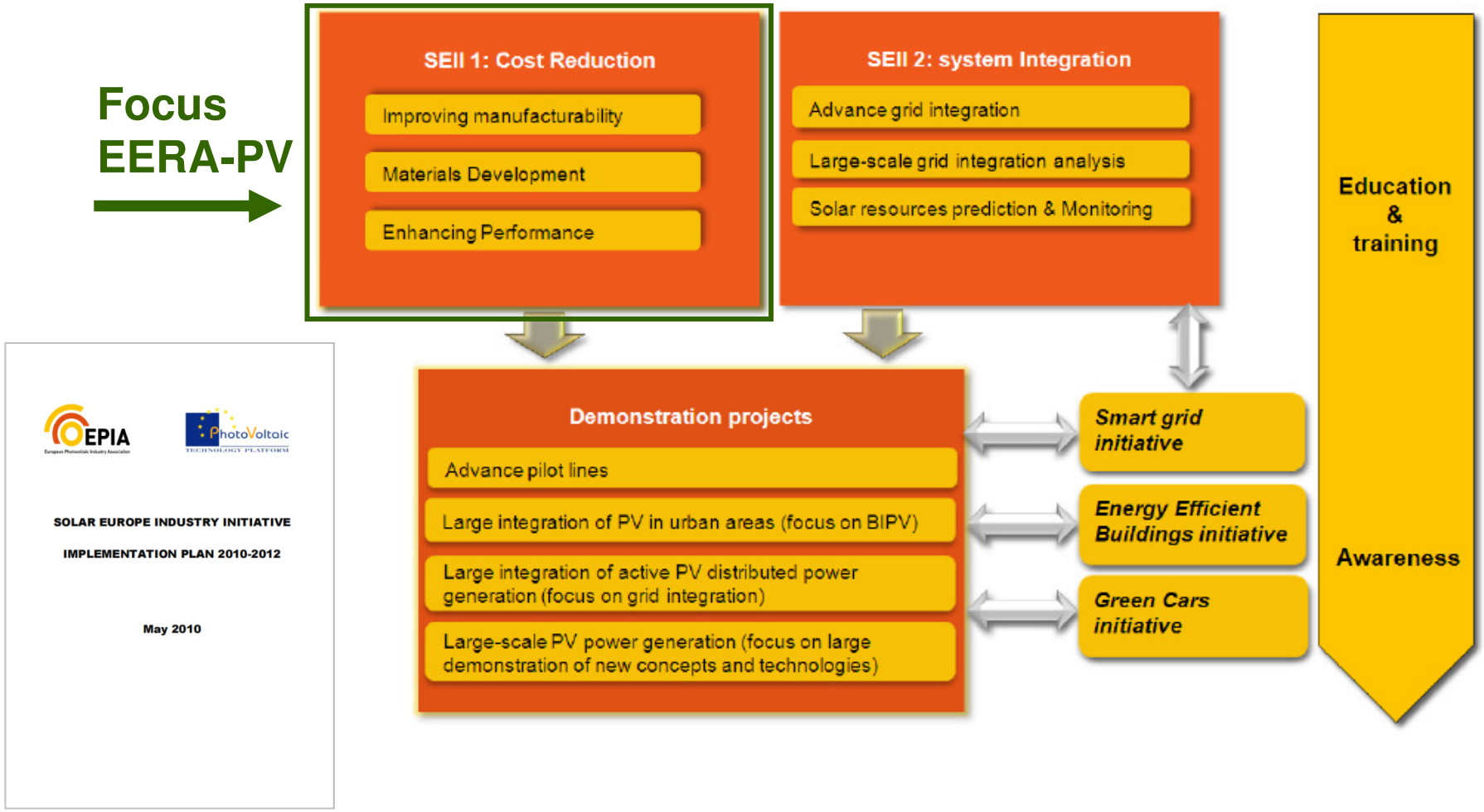
Focus EERA-PV



Source: EC Technology Roadmap (SEC(2009) 1295, 7 October 2009)

Relation with the Solar Europe Industry Initiative (SEII)

PV technology development 2010 – 2020



Relation with the SOPHIA project

- The topics of all 5 EERA Subprogrammes are represented in the SOPHIA project
- 6 out of 10 EERA founding partners are partners in the SOPHIA project
- Part of the activities foreseen in EERA-PV may be funded through the SOPHIA project

SOPHIA:

- Networking activities (NA)
- TransNational Access (TNA)
- Joint Research Activities (JRA)

Activities since launch

- Acquisition of SOPHIA Research Infrastructure project
- Kick-off EERA-PV and SOPHIA (February 7-9, Amsterdam)
- Introduction EERA-PV in SEII Steering Team (February 9, Brussels)
- Participation in hearing on roadmapping “Materials for the SET-plan” (March 15 , Brussels)
- Steering Committee meeting (6 September), admission of 5 new organisations
- Compiled & provided input to FP7 WP Energy 2013
- Ongoing: joint research activities

What can we offer?

- Contribution to (continuity in) programming of R&D
- R&D in support of realisation of SET-Plan
- Overview of R&D programmes in MS
- Identification of opportunities for R&D collaboration between MS

Thank you for your attention!